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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WANG, JIN CHENG

ART UNIT PAPER NUMBER

2628

DATE MAILED: 04/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/439,225		SALDANHA ET AL	
	Examiner		Art Unit	
	Jin-Cheng Wang		2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/12/1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. The submission filed on 2/2/2006 has been entered. Claims 1, 6-8, 16, 18-19, 21, 29-31, 33, and 38 have been amended. Claims 1-45 are pending in the application.

Response to Arguments

Applicant's arguments filed February 2, 2006 have been fully considered but are not found persuasive in view of the new ground(s) of rejection set forth in the present Office Action.

As address below, the Claim 1 is unpatentable over Sakaguchi U.S. Patent No. 6,310,627 (hereinafter Sakaguchi).

For example, Sakaguchi teaches displaying a system and method for generating a three-dimensional image representing a stereoscopic shape of a garment when the garment is put on a three-dimensional object such as a person's figure. The system and method comprise generating a 3D image of an object model corresponding to the person's figure; inputting information on the person's figure and a try-on garment; arranging the images of the respective patterns of the garment in corresponding portions of the 3D image of the object model, three-dimensionally deforming the images of the respective patterns by calculating collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on

the garment, and generating a stereoscopic image of the garment by connecting the deformed 3D images of the respective patterns based on the information on the garment. Moreover, Sakaguchi teaches rendering the garment animation images on the three-dimensional character images and simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved (column 31, lines 21 to column 33, line 38). The collision and animation of the garment with respect to the human model correspond to the draping and collision of the garment with the mannequin wherein the patterns and deformation parameters affects the draping and collision of the garment with the human model.

See column 8, lines 30-35 wherein the cited reference discloses a range defined by a maximum moving distance of the human model M per unit time with a margin; the triangular patches of the human model M corresponding to the respective lattice points are detected and the coordinates of the respective lattice points of the patterns D are moved according to the moving distances of the corresponding triangular patches of the human model M during the unit time.

The cited reference teaches constraining portions of the garment C to reside within or outside the one or more triangle patches enclosed by the lattice points c_i defined with a distance from the lattice point a_i from the mannequin M or the figure model M.

The cited reference also teaches constraining portions of the garment C' to reside within or outside the one or more shells or the triangle patches enclosed by the lattice points c_i' defined with a distance from the lattice point a_i' from the mannequin M' or the figure model M'.

In column 21, lines 35-63, Sakaguchi further discloses the pattern preparing system 40 for generating a plurality of patterns and for deforming the 3D image of the standard figure to generate an individual figure model and for generating a plurality of patterns for the garment

Art Unit: 2628

fitted on the human model. Sakaguchi discloses constraining the garment to reside within or outside of the triangle patches defined around the mannequin in the rendering frame. Sakaguchi also discloses constraining the garment to reside outside of the triangle patches of the human model defined around the mannequin in the rendering frame (col. 25, lines 1-67; col. 30, lines 24-65).

Therefore, Sakaguchi at least suggests the claim limitation of “the shell defined around the mannequin” because Sakaguchi discloses the shape of the garment (as broken into triangle patches) as fitted into the shape of the human model (col. 25, lines 1-67; col. 30, lines 24-65).

Therefore, it would have been obvious to incorporate the shell defined around the surface of the mannequin. Doing so would enable simulation and calculation of the collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on the garment (column 31, lines 21 to column 33, line 38).

Drawings

The drawings are objected to because the drawings of Figs. 1A-11 of 11/12/1999 do not comply with 37 CFR 1.121(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of

Art Unit: 2628

the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

.Specification

The disclosure is objected to because of the following informalities: On line 9 of the claim 1, "each, shell" should be "each shell". Appropriate correction is required.

Claim Objections

Claim 1 is objected to because of the following informalities: On line 9 of the claim 1, "each, shell" should be "each shell". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-15, 19-31 and 38-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2628

The claim 1 recites “one or more shells defined around the mannequin”. However, shells as defined in applicant’s specification (e.g., Figs. 6 and 8a) are constrained within the 2-D curves while the mannequin is a 3-D human figure. Clarification is required.

The claims 2-15 depend upon the claim 1 and are rejected due to their dependency on the claim 1.

The claim 19 or 29 is subject to the same rationale of rejection set forth in the claim 1.

The claims 20-28 depend upon the claim 19 and are rejected due to their dependency on the claim 19.

The claims 30-31 depend upon the claim 29 and are rejected due to their dependency on the claim 29.

The claim 38 is subject to the same rationale of rejection set forth in the claim 1.

The claims 39-43 depend upon the claim 38 and are rejected due to their dependency on the claim 38.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaguchi U.S. Patent No. 6,310,627 (hereinafter Sakaguchi).

Re claims 1 and 38, Sakaguchi teaches a method for producing an image of a computer-simulated mannequin wearing a garment as defined by selected mannequin and garment parameter values, comprising generating objects corresponding to a representative mannequin and a garment placed in a simulation scene within a three-dimensional modeling environment (e.g., col. 30, lines 57 to col. 33, lines 38), simulating draping and collision of the garment with the mannequin within the simulation scene to generate a three-dimensional rendering frame of the mannequin wearing the garment (e.g., col. 30, lines 57 to col. 33, lines 38), constraining portions of the garment to reside within or outside of one or more shells (the shells are interpreted in light of applicant's specification, see applicant's drawing in Fig. 8A and Fig. 6 wherein Fig. 8A and 6 defined 2D shells, the cited reference discloses shells in the form of the 2D patterns D'' surrounding the 2D projection of the mannequin or the human model. Even if the shells are 3D regions around the mannequin or the human model, the cited reference discloses shells in the form of the 3D patterns D' surrounding the mannequin or the human model M'; See column 24-25 wherein the first projection function T in which the positional relationship between the lattice points ci and ai may be represented by vector distances therebetween and the second projection function in which the lattice points ai and ai' may be represented by vector distances therebetween; and the garment C' is related to M' by the first projection function; see column 22. The cited reference teaches constraining portions of the garment C' such as the patterns D' to reside within or outside the one or more shells or the planar regions enclosed by the lattice points ci' defined with a distance from the lattice point ai' from the mannequin M' or the figure model M') defined around the mannequin in the rendering

Art Unit: 2628

frame, each shell being separate from the mannequin (the shape of the garment as fitted into the shape of the human model; see e.g., col. 25, lines 1-67; col. 30, lines 24-65; See column 7, lines 30-41 wherein the cited reference teaches arranging the patterns *D* in specified positions around the human model *M* and calculating the collisions of the patterns *D* with the human model *M*. See column 8, lines 30-35 wherein the cited reference discloses a range defined by a maximum moving distance of the human model *M* per unit time with a margin; the triangular patches of the human model *M* corresponding to the respective lattice points are detected and the coordinates of the respective lattice points of the patterns *D* are moved according to the moving distances of the corresponding triangular patches of the human model *M* during the unit time), and rendering an image from the rendering frame (e.g., col. 31, lines 21-55).

In other words, Sakaguchi teaches displaying a system and method for generating a three-dimensional image representing a stereoscopic shape of a garment when the garment is put on a three-dimensional object such as a person's figure. The system and method comprise generating a 3D image of an object model corresponding to the person's figure; inputting information on the person's figure and a try-on garment; arranging the images of the respective patterns of the garment in corresponding portions of the 3D image of the object model, three-dimensionally deforming the images of the respective patterns by calculating collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on the garment, and generating a stereoscopic image of the garment by connecting the deformed 3D images of the respective patterns based on the information on the garment. Moreover, Sakaguchi teaches rendering the garment animation images on the three-dimensional character images and simulating a deformation in the garment caused by the collision of the human model and the

Art Unit: 2628

garment when the human model is moved (column 31, lines 21 to column 33, line 38). The collision and animation of the garment with respect to the human model correspond to the draping and collision of the garment with the mannequin wherein the patterns and deformation parameters affects the draping and collision of the garment with the human model.

However, Sakaguchi does not specifically teach the claim limitation of “the shell defined around the mannequin”.

In column 21, lines 35-63, Sakaguchi further discloses the pattern preparing system 40 for generating a plurality of patterns and for deforming the 3D image of the standard figure to generate an individual figure model and for generating a plurality of patterns for the garment fitted on the human model. Sakaguchi discloses constraining the lattice points defining the garment with a vector distance from the lattice points forming the triangle patches of the mannequin in the rendering frame. See column 24-25 wherein the first projection function T in which the positional relationship between the lattice points c_i and a_i may be represented by vector distances therebetween and the second projection function in which the lattice points a_i and a_i' may be represented by vector distances therebetween; and the garment C' is related to M' by the first projection function; see column 22. The cited reference teaches constraining portions of the garment C to reside within or outside the one or more triangle patches enclosed by the lattice points c_i defined with a distance from the lattice point a_i from the mannequin M or the figure model M.

The cited reference also teaches constraining portions of the garment C' to reside within or outside the one or more shells or the triangle patches enclosed by the lattice points c_i' defined with a distance from the lattice point a_i' from the mannequin M' or the figure model M' .

Therefore, Sakaguchi at least suggests the claim limitation of “the shell defined around the mannequin” because Sakaguchi discloses the shape of the garment (as broken into triangle patches) as fitted into the shape of the human model (col. 25, lines 1-67; col. 30, lines 24-65) wherein the shape of the garment are defined by the triangle patches which is the shell defined around the mannequin.

Therefore, it would have been obvious to incorporate the shell defined around the mannequin. Doing so would enable simulation and calculation of the collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on the garment (column 31, lines 21 to column 33, line 38).

Re claims 2, 35, and 43, Sakaguchi discloses the rendered image is used to form a visual image on a computer display device (col. 27, lines 25-67; column 31, lines 21-55; column 33, lines 25-38). Sakaguchi teaches rendering the garment animation images on the character images and simulating a deformation in the garment in a three-dimensional simulation scene wherein the animation involves a 3D human model wearing a garment from the external storage device and the scene is rendered frame by frame and thereby simulating the wearing style of the human model as the scene is rendered.

Re claims 3-4, 6-9, 13, 30-31, 33, and 36, Sakaguchi discloses generating rendering frames containing mannequin or garment objects as defined by selected parameter values by shape blending corresponding objects of previously generated rendering frames (column 25, lines 1-67; column 31, lines 21 to column 33, line 38). Shape blending refers to a technique used to change mannequin or garment dimensions by changing the dimension parameters in a

Art Unit: 2628

previously generated rendering frame. However, Sakaguchi discloses changing the deformation parameters (a specific movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved (column 31, lines 21 to column 33, line 38).

Re claims 5, 23, 42 and 45, Sakaguchi discloses the two-dimensional images are rendered from a rendering frame using a plurality of camera positions (column 25, lines 42-67; column 26, lines 1-42; col. 27, lines 54-67). Applicant admits that the camera referred to herein is not a real camera and refers only to a viewing position for rendering the image from the three-dimensional rendering frame. However, Sakaguchi teaches digitizing a three-dimensional image so that the 2D images of the garment patterns are generated with respect to a reference line or a viewpoint position. **Sakaguchi further teaches *photographing a 3D model in motion along time axis at suitable angles* and under suitable lighting and the movements of the person in the three-dimensional virtual environment can be stereoscopically viewed from a variety of angles** (column 29, lines 30-36).

Re claims 10-12 and 39, Sakaguchi discloses the separate rendering frames are combined into a composite two-dimensional image using Z-coordinates of the objects

Art Unit: 2628

(col. 32, lines 7-16; col. 30, lines 37-65). First of all, Sakaguchi discloses combining the garment animation image and the human animation image (column 30, lines 37-67 to col. 31, lines 1-10). Sakaguchi further discloses the z coordinates in the Z buffer method for combining a plurality of patterns or frames to form a two-dimensional image (column 25, lines 42-67; column 26, lines 1-42; col. 27, lines 54-67; column 29, lines 30-36). **Sakaguchi teaches comparing (z coordinates of) the lattice points of the human model and the garment to generate a two-dimensional image (col. 25, lines 1-67).**

Re claims 14-15, Sakaguchi discloses a network and a processor-executable instructions (col. 27, lines 54-67).

Re claims 16, 19, 29, and 32, the limitations of claims 16, 19, 29, and 32 are analyzed as discussed with respect to claim 1 above except for generating rendering frames containing mannequin or garment objects as defined by selected parameter values by shape blending corresponding objects of previously generated rendering frames. Shape blending refers to a technique used to change mannequin or garment dimensions by changing the dimension parameters in a previously generated rendering frame. However, Sakaguchi discloses changing the deformation parameters (a specific movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the

Art Unit: 2628

garment when the human model is moved (column 31, lines 21 to column 33, line 38).

Sakaguchi discloses a shaping blending (column 30, lines 45-65) wherein a stereoscopic image of the garment put on the human model is simulated in which the 3D animation images representing the movement characteristics (shape change) of the garment by combining (blending) the garment animation image and the human animation image. Sakaguchi discloses calculating the collision of the human model and the garment to thereby calculate a 3D image in which the state of the garment changes more realistically and the change image is calculated for the respective parts, i.e., hands, legs, trunk of the human model (column 32, lines 40-65).

Re claims 17-18, 20-22, 24-28, 37, and 40-41, Sakaguchi discloses a plurality of garment patterns that are connected together during the draping and collision simulation and further wherein the garment parameters including the normal lines of the surface of the garment (col. 31, lines 55-67). Referring to the claim 18 and 24, Sakaguchi further discloses wearing multiple garments from the garment animation image generator around the 3D images of the human model and defining parts of the human image model and garments so that the deformation in the garment caused by the collision of the garment and the human model is simulated (column 32, lines 8-65). Referring to the claim 20, Sakaguchi discloses that patterns for the garment images are combinable along the outside surface of the human model into the composite animated image. In column 21, lines 35-63, Sakaguchi further discloses the pattern preparing system 40 for generating a plurality of patterns and for deforming the 3D image of the standard figure to generate an individual figure model and for generating a plurality of patterns for the garment fitted on the human model. Sakaguchi also discloses constraining the garment to reside outside of the triangle patches of the human model defined around the mannequin in the rendering frame.

Art Unit: 2628

Referring to the claim 21, shape blending refers to a technique used to change mannequin or garment dimensions by changing the dimension parameters in a previously generated rendering frame. However, Sakaguchi discloses changing the deformation parameters (a specific movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved (column 31, lines 21 to column 33, line 38). Referring to the claim 22, Sakaguchi teaches mapping the pieces of information on the shape, material, color, pattern and the like of the desired garment for this garment before the 2D images of the patterns for the special garment is rendered.

Referring to the claims 26 and 40-41, Sakaguchi discloses changing the deformation parameters (a specific movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the garment when

Art Unit: 2628

the human model is moved (column 31, lines 21 to column 33, line 38). Referring to the claim 27, a different version of the animated image of the human model and a different version of the animated image of the garment are rendered frame by frame wherein the image of the garment is fitted to the image of the human model in a 3D space. Referring to the claim 28, Sakaguchi discloses the rendered image is used to form a visual image on a computer display device (col. 27, lines 25-67; column 31, lines 21-55; column 33, lines 25-38). Sakaguchi teaches rendering the garment animation images on the character images and simulating a deformation in the garment in a three-dimensional simulation scene wherein the animation involves a 3D human model wearing a garment from the external storage device and the scene is rendered frame by frame and **thereby simulating the wearing style of the human model as the scene is rendered.**

Re claim 34, the limitations of claim 34 are analyzed as discussed with respect to claim 1 above except for a user interface and a repository. Sakaguchi teaches the claimed limitation (col. 31, lines 20-55) when he discloses inputting the kind of the shape of the garment such as a dress or a two-piece suit and inputting the motion data from the motion data input device. As for a repository, Sakaguchi further discloses the computer system thus has a repository including the external storage device 75 or an external storage device 45 storing a plurality of garment images and the garment images generated by the garment animation image generator 7104 and rendering the animation images of human model wearing a dress or garment in walking by combining the **3D images** of the human model and the **stereoscopic images** of the garment frame by frame by **the Z buffer method** successively outputs the image data to the display device 76 (col. 31, lines

Art Unit: 2628

20-67 and column 32, lines 1-65) wherein the images of a plurality of patterns for the stereoscopic images of the garment are 2D images (column 23, lines 60-65).

Re claim 44, the limitations of claim 44 are analyzed as discussed with respect to claims 1 and 34 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jcw

